Vol. 1, No. 1 November, 1958

AMERICAN ASSOCIATION OF COST ENGINEERS

BULLETIN

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Notes from the Editor

It's finally off the press . . . . .

This publication represents a milestone in the young history of the AACE.

Because we are all working toward making the *Bulletin* worthy of representing our Association, I would like to serve notice that we will want contributions for its pages. Reports on your activities, technical papers, comments, criticisms and suggestions for improving its coverage will be welcomed. So get busy now and make it a practice to keep me informed. *Copy deadline for the next issue is January 2, 1959.*

While our membership has had a phenomenal increase, proving the need for the AACE, we can certainly benefit from additional growth. Your interest and cooperation is solicited in recommending qualified personnel for membership.

Art Miller. sponsor-director of the Technical Committees, has the "men-wanted" sign out. Committee activities have been the backbone of the AACE and all committees can use more members who will take a real interest in this stimulating work. The results are rewarding and Art assures me that "it pays double time for work in the evenings".

Included in this issue are the fruits of the activities of the technical committees. Your opinions of the proposed cost code will be of benefit to the Association as well as to industry as a whole. For example, a discussion with your colleagues of the following is highly desirable.

Is the general approach a good one?

Do the majority of people favor the 4 area breakdown?

Can the numbering system be improved?

Sometimes a contractor's indirect cost becomes a producing company's direct cost. How can the code best provide for this and still be applicable to both types of companies? etc. etc.

Another project that is being developed in the interest of better communication among our members is a Directory of active membership. This will require your cooperation. Forms will be sent to you in December and we will appreciate your completing them and returning them promptly.

I hope to see you all in Pittsburgh on June 24. By the way, Jim Caufield, chairman of the Technical Program for the 1959 AACE meeting is interested in receiving informative papers on the subjects of Cost Estimating or Cost Control. If you have any new ideas, new approaches or new experiences he would like to include you in the program. Write to him at P.O. Box 174, Louisville 1, Kentucky.

Keep the suggestions coming.

Letters to the Editor

Dear Sir:

. . . I used to wonder why there were so few members from the Contractor Fraternity. On the basis of the name of the society, I had assumed that AACE included everyone interested in Costs, particularly Contractors, for it is the Contractor who risks his money on the basis of estimates before the job is started, before-the-fact shall we say, who then has to do the job and "get" those costs — or face extinction.

The cost engineer who works for a process industry, on the other hand, is essentially a buyer and factorizer of labor, material and services, whose knowledge of costs generally comes after-the-fact.

There is a time and place for both, and we need them both to make the society truly the American Association of Cost Engineers. I would recommend that Object Number 1 should read:

"To advance the science and art of cost engineering in or related to the *construction and process industries.*"

G. A. A.
San Francisco, California

Dear Sir:

. . . The tendency has been towards limiting the Association to the so-called Chemical Industries.

When I attended the second meeting in Durham (1957) I was dismayed to observe:

Leaning towards the "Process Industries".

Most papers had little to do with *proved* estimating.

Frankly, my work places me in competition with the bidding contractor. You can't argue successful bids against *thecretical* Cost Engineering.

However, I am still somewhat hopeful that the future may disclose a more open minded and practical broad programming.

C. A. C.
Oak Ridge, Tennessee

● The issues raised in the above letters are already under consideration by the Board of Directors. I thought you might like to go behind the scenes and from my vantage point read some of the correspondence dealing with this subject. Some comments by the AACE Board of Directors follow. — ED.

"I, too, am coming around to the thought that the AACE need not be tied to the process industries. When we were starting out I was of the opinion that the group needed the unifying influence of a common industry interest, and I believe that up to now this has been a wise course. But maybe we are now ready to broaden our perspective."

"I always interpreted the direction of the Founding Meeting as defining our field of interest in the Chemical and Process Industries. C. A. C.'s point on "Firm Bid Estimating" is well taken, and I believe it would be a good idea to have a paper presented on this subject at the meeting in Pittsburgh next year."

"Contrary to what G. A. A. thinks, it is my responsibility to advise management of what a project will cost long before contractors know we are thinking about a job. This advice had better be correct or I'll be using the "Position Wanted" column in our bulletin. It will be from the joint and 100% cooperation of owners and contractors, with the AACE as a common meeting ground, that we will all benefit."

"If the Association is to reach its full potentiality it must include both owners' representatives and contractors' representatives. It must include people who are working on detailed cost estimates from completed plans and people who must make estimates based on the flimsiest of information. Each of these sub-fields helps the other and keeps the whole field of activity in balance.

"There is no advantage to the profession, and much to be lost, if we should limit our activities to a single narrow field. For maximum benefit to the membership we need to have in our organization both hard-headed contractors' estimators, and theorists who can make our work easier by their analysis and organization of raw cost data into useful form."

AACE ELECTION RESULTS

Three hundred and ten ballots were cast in this close race. Those elected will take office on January 1, 1959, however, amendments to the Constitution and By-Laws are effective June 24, 1959.

President:	Sidney Katell	138
	C. ARTHUR MILLER	169*
Vice President:	J. C. Agarwal	86
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	Frederick A. Franks	90
	William F. Gott	66
	WILLIAM E. HAND	167*
	Allan P. Stern	117

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* Elected.

Proposed Changes to Constitution and By-Laws
Part I Changing Membership Requirements
(proposed amendment *italicized*)

ARTICLE III — MEMBERSHIP

Section 3. A member shall be an individual who is engaged in cost engineering and meets one of the following requirements: (a) Is a graduate of a recognized engineering curricula *and has at least five years of experience in a responsible position;* (b) Holds a license to practice Professional Engineering; (c) Has at least *ten* years of experience in *the* engineering *profession and at least seven of those years are in a responsible position.*

For the amendment 286
Against the amendment 21

Amendment passed

Part 2 Changing Affiliate to Associate Member
For the amendment 302
Against the amendment 5

Amendment passed

A NEW BREED OF ENGINEERS

By John W. Hackney, President AACE — A Special Report to the Membership

Well, the summer is over and here in Cleveland we are getting in the fireplace wood and raking leaves. It's been a good summer, with lots of rain and the grass growing like mad.

High point of the summer for the Cleveland Section, of course, was the AACE convention at Case Institute. We felt once again the lift and inspiration of meeting and talking with engineers who have problems and interests similar to ours. Charlie Hirt did a bang-up good job in assembling the program and Allan Stern did equally well as major-domo for arrangements. The technical sessions were excellent.

As we get away from the vacation season and back to the more serious job of earning a living, it seems like a logical time to review the affairs of our Association. Why was it founded? What is it's reason for existing? What are the best means of fulfilling its bright promise?

It seems to me that the basic reason for the development of an Association of Cost Engineers is the evolution of the cost engineer himself. In simpler times, accountants kept cost records and managers made the decisions as to what products to make and what facilities to build. Although some engineers were engaged in cost estimating, most engineers concerned themselves with technical problems, sometimes to the extent of ignoring the dollar facts of life.

The explosive growth of technology changed this situation. Cost analysis and cost decisions became so intimately blended with technology that a new breed of engineers was evoked, the cost engineers. These engineers were asked to utilize their technical background to attack problems combining technology, cost and profitability. They were asked to provide management with information needed to make decisions concerning the manufacture of new products, the dropping of old products, the building of new plants and so forth. In this work they were teamed-up with accountants approaching these problems from financial and cost record angles. They were joined by contractor's estimators having a long experience of wrestling with cost problems on a very practical basis.

These new-fledged cost engineers, however, found themselves in difficulties. Not only were they faced with the problem of educating themselves with respect to the techniques already in use by accountants and other estimators, but they could clearly see the need for new techniques. It was only natural that they could seek the assistance of others faced with similar problems.

The organizational meeting of cost engineers at the University of New Hampshire, under the guidance of Dr. Zimmerman and Dr. Lavine, produced a very clear-cut definition of cost engineering — "the application of scientific principles and techniques to problems of cost estimation, cost control and profitability".

Since the establishment of this definition in 1956, its implementation has gradually been clarified. Considering the ways in which the Association should serve the cost engineer, we can now outline its functinons as:

1. Encouraging the creation of new theory and techniques for handling cost engineering problems.
2. Refining, codifying, improving and standardizing existing and newly created cost techniques.
3. Communicating existing and newly discovered information, ideas and methods among the individuals interested in this type of work.
4. Coordinating our work with engineers in all branches of the profession, with the colleges which will train the cost engineers of the future and with our associates in closely related fields, such as accounting.
5. Handling the Association's own affairs in efficient support of the primary functions above.

Turning to the organizational pattern which has been developed to carry out these functions, lets consider the first item, the encouragement of the creation of new theory and techniques.

CREATION OF NEW TECHNIQUES

The creation of new theory and techniques cannot be accomplished by the Association as a whole, or even by committees. Creation is the function of the individual cost engineer. He alone, by adding a flash of creativeness to a background of experience and the contributions of others, produces something new.

There are several things we can do, however, to encourage these engineers who are capable of creative thinking. In the first place we can give them additional incentive to do creative work. New techniques and methods, no matter how excellent, are accepted by industry with restrained joy. True, the new technique may be helpful, but it will also disrupt existing methods and procedures, change job duties, eliminate positions, create others and so forth. At the very least there will be changes requiring abandonment of well known methods and an adoption of new ones. The joy is even more restrained when the change is a technical improvement which is difficult for those unfamiliar with cost engineering work to understand.

The Association therefore performs a very real and helpful service when it recognizes and honors the engineers who take the time and trouble, usually outside of their regular working hours, to make creative improvements in cost engineering. It is for this reason that the Awards Committee, under the leadership of our past-president Norman Bach, has been created.

Another way in which the Association aids the individual who is capable of creating new techniques is by providing him with the means of acquiring facts and information developed by his coworkers in the profession. The creative process is sometimes considered to be made up of three steps — first, the collection of information in the creator's mind and files, perhaps over a period of years. Second, the "flash of inspiration" which combines the information collected so as to form a new, useful pattern which never existed before. And finally the painstaking working out of the detailed proof and application of the new theory or techniques. The Association encourages the individual to carry through this climactic step, without which the "flash of inspiration" is impotent, by providing for publication in professional journals and in its own *Bulletin*.

TECHNICAL IMPROVEMENT AND STANDARDIZATION

The second major function of the Association is refining, codifying, improving and standardizing existing or newly created techniques. This area of the Association's activities has been intrusted to a sponsor-director, Art Miller, who

has under his guidance a group of Technical Committees.

Work of this type is best performed by groups of individuals, each contributing his share of knowledge to the general store. The Technical Committees will therefore be aided by task forces each made up of individuals within a single regional section, who will be assigned a special task within the speciality of a committee. These task forces will have a limited life, being set up to accomplish a specific task and disbanded when the task is complete.

At the present time the Technical Committees of the Association are as follows:

COMMITTEE	CHAIRMAN
Terminology Standards	D. Seltzer
Cost Records Standards	E. F. O'Connell
Estimating Methods	J. M. Gorey
Cost Indexes	W. G. Boston
Profitability	P. H. Demming

PUBLICATION

The third function of the Association is to communicate existing and newly discovered information, ideas, methods and techniques among the individuals interested in this type of work. One channel of communication is the Publication Committee. Led by Bob Fithian, it has encouraged and assisted individual members of the Association in publishing their works in the various technical journals.

The second primary channel of communication is expected to be the *AACE Bulletin*. The *Bulletin* will keep members advised of cost activities especially in those special fields of cost work which may not be of general interest to readers of existing technical magazines. It will also present papers which pertain to several or all of the fields of engineering. Ed Shanken, our Executive Secretary, is editor for this new publication.

The third channel of communication is bibliography. A Bibliography Committee has been established under the guidance of Jim Weaver to keep the membership currently advised of the cost information being published. This will be extremely helpful, since cost information now appears in a wide scattering of publications.

Bill Clark is the sponsor-director leading these three committees which deal with the communication of information.

EXTERNAL RELATIONSHIPS OF THE ASSOCIATION

The external affairs of the Association are under the direction of Dr. Zimmerman, who is sponsor-director for committees in the fields of publicity, coordination and education.

The Publicity Committee is headed by Tom Arnold. Publicity is important as a means of attracting new members who can add their experience and support to the Association. Publicity also increases the stature of cost engineers within the engineering profession and expedites improvements in cost techniques within their own companies. It might even make it a little easier to get a raise now and then.

Coordination is another area of our external affairs. Because the work of the Association cuts across established groupings of engineers, we must coordinate our activities with the excellent work already begun by the American Institute of Chemical Engineers, the American Society of Civil Engineers and other technical societies. The cost work done by these individual organizations needs to be made available to all cost engineers. Attention to this situation and coordination of our efforts with non-engineering groups, such as accountants, is the work of the Coordination Committee under the leadership of Elsie Eaves.

The third field of external affairs is education. The average technical curriculum is sadly lacking in cost engineering instruction. Part of this is due to the fact that good material for instruction has not always been available and part is due to a general lack of emphasis on profitability in our colleges. Our Education Committee, led by Professor M. S. Peters, is working toward the improvement of this situation. Their objective will be to advise colleges with respect to course content and to see that the solid improvements in cost engineering techniques produced by the Technical Committees are passed on to the colleges at an early date. By this means engineering students will have an introduction to modern cost engineering and be able to understand its function in a technical-based corporation.

MEMBER ACTIVITIES

In order to have a healthy, live organization, member relationships must be under constant surveillance. Cecil Chilton, as sponsor-director for member relations, leads three committees established for this purpose.

First of these is the Regional Activities Committee, headed by Blase Nemeth. This committee is designed to aid members in forming local sections and operating them to the best advantage. Some of the best contacts our cost engineers can make are at the regional meetings. Within these regional groups will also be established the task forces on which we are relying for technical improvements and standardization.

The Membership Committee, led by Earl Clark, has the general assignment of encouraging membership in the Association. It recommends action and takes action which will encourage members to join the Association and stay with it as active participants. Only active members are truly valuable to the Association and active members are the ones who benefit by membership.

The Admissions Committee headed by Jay Agarwal has the important function of screening applicants for admission. This is a primary means of maintaining the professional status of the Association at a high level.

ANNUAL CONVENTION

The Annual Convention of the Association is the high point of the Association year and has proved to be of great benefit to the members. It is usually under the direction of the Vice-President with two committee chairmen, one to handle the technical program and the other to handle convention arrangements. The chairman of the technical program committee for the Pittsburgh Convention in 1959 is Jim Caufield, former chairman of the Cost Index Committee. Jim Black is general chairman for the committees responsible for the physical arrangements at the convention, and for the comfort and entertainment of those who attend. We're looking forward to a convention which will be "bigger and better than ever".

Speaking of bigger and better conventions, the Houston Convention in 1960 promises to be something special — Texas style!

ADMINISTRATION

In addition to the work the Association carries out with respect to accomplishing its technical objectives, there are administrative functions which must be performed to make it an efficient instrument of the membership.

The Planning Committee has the assignment of doing some long-range thinking about the purposes of the Association and the means by which these purposes can be accomplished. The report presented by Committee Chairman Barney Gaffney at the Cleveland convention is a fine example of the type of work expected from the group. This committee will be a spark plug of new ideas for the organization. We may not agree with all of the ideas put forth, because the committee by its nature needs to consider all possibilities no matter how novel, but we are looking to this group to prod us from any ruts we may tend to develop.

The other committees required for efficient operation need only be named to indicate their function, These are the Audit Committee, the Nominating Committee and the Budget Committee. Of these the Nominating Committee is perhaps the most important. The selection of nominees by this committee can have a tremendous influence on the growth or decline of the Association.

The Treasurer performs the essential function of collecting dues and paying bills for the Association. During this last year his duties have also included the short-term investment of the modest surplus being held for enlargement of our activities, specifically the publication of the *Bulletin*. Bruce Landis has served faithfully as our Treasurer since the organization in 1956.

Last but not least is the office of the Executive Secretary. This is the hub of Association activities. John Husted did yeoman work as Executive Secretary during the critical formative months or the Association. Ed Shanken of the University of New Hampshire took over as Executive Secretary last year on a part-time paid basis, assisted by his wife. Ed has been doing a fine job with limited facilities. As the Association grows in size and resources we can expect more complete and helpful service to the membership from this headquarters.

CONCLUSION

I hope that this highlighting of our organization may give you an idea of the particular fields in which you can be of most help in the Association, or in which you can meet and work with members having an interest in your speciality. Don't hesitate to write to the sponsor-directors or committee chairmen listed and let them know that you would like to participate. Your help is needed and I can guarantee that you will find the experience richly rewarding.

I extend you my best wishes for a good fall program season in your regional sections.

TECHNICAL COMMITTEES MAKE PROGRESS

by C. ARTHUR MILLER, Sponsor-Director,
AACE Technical Committees and President-Elect

Last year the Technical Committees outlined a Standards Program for the AACE. Problems, common interests, a method of approach and the difficulties were discussed. During the annual conference in 1957 the various committees held several meetings. Ideas were pooled and a great deal of progress was made. Each committee went away more or less keyed up to the job that lay ahead of them.

In the months that followed our progress could be described as a mixture of encouragement and discouragement. We found that distance is a great deterrent to speed and having a committee scattered all over the continent doesn't make for maximum efficiency. (We even found that some members gave priority to their jobs over the AACE.)

We also found that there was a recession of some sort in the United States. Nevertheless, a great deal of work and effort has gone on behind the scenes.

A "standard" procedure for handling committee work assignments as well as identifying and issuing the resulting Standards and Data Sheets has been adopted as follows:

(1) All work assignments in the Technical Committees will be given a Study number. A prefix attached to the Study number will establish what committee is involved and whether it is a Standard or a Data Sheet. Hence:

Committee	PREFIX	
	Standard	Data Sheet
Cost Index	CI - S	CI - D
Cost Record	CR	Not applicable
Estimating Method	EM - S	EM - D
Profitability	P - S	P - D
Terminology	T	Not applicable

(2) All Standards or Data Sheets will bear the same identification number as the study it came from. Where practical "Data Sheets" will also be identified by the standard code of accounts.

(3) The Technical Committees will develop the assignments in the form of "drafts" with a date attached e.g.

Study No. EM-S-13, Draft No. 3 dated 1/4/58

(4) The director of Technical Committees and the Committee Chairman will decide when a draft is final. It will then be presented to the Board of Directors for approval (or to a suitable technical body appointed by the Board for the purpose).

(5) On approval, the draft will become a "Provisional Standard" or "Provisional Data Sheet" and be issued to the membership. In all cases the date should be included.

The Provisional Standard or Data Sheet could be in use for say two years, at the end of which time it would be revised if necessary and re-issued under the title of: *"AACE Standard"* or *"AACE Data Sheet"*. In all cases a date should be included.

Formal release would be through the Publication Committee.

The papers published in this issue of the *Bulletin* coupled with the Estimating Methods Committee work by H. J. DeLamater on "Heat Exchange Cost Data", part of which was published in the October 6, issue of *Chemical Engineering*, is tangible evidence of the progress of these committees to date.

At this stage the Profitability Committee has decided to concentrate in the first instance on profitability indexes and concepts as distinct from manufacturing costs.

It is felt that general accounting practices take care of manufacturing and that the greatest need is in the profitability index field. A questionnaire will again be issued to the membership to obtain a picture of various company practices. A comprehensive literature search has been planned.

Our committees can use more members: members who will take a real interest and are willing to work. We prefer those who have a fair chance of being able to attend two meetings a year, one of which takes place at the Annual Meeting. Like so many other activities you take out in keeping with what you put in.

If you can contribute to the Association in this way, don't hesitate to make it known to any of the Committee Chairmen or to me.

Technical Papers

Available free, as long as they last, to AACE members, by request:

1 — "Accurate Way to Estimate Pipe Costs" by W. G. Clark
2 — "Computer Speeds Economic Evaluations" by J. F. Adams, W. L. Massey, Jr. and M. Dmytryszyn
3 — "Construction Cost Trends 1913-1957 as measured by the ENGINEERING NEWS-RECORD Cost Indexes"
4 — "Project Cost Control" by L. W. Blazey (ENCLOSED)
5 — "Ratio Cost Engineering" by H. C. Bauman
6 — "The Cost of Preparing An Estimate" by K. G. Wolfe
7 — "Which Depreciation Method is Best" by B. J. Gaffney
8 — "The Electronic Digital Computer" by H. W. Powell
9 — "Putting the Digital Computer to Work on Cost Data" by C. J. Bauman
10 — "Statistics, Computers and Cost Control" by A. A. Brown
11 — "Joint and By-Product Costing" by A. F. Dershowitz
12 — "Optimum Profits from a Multiproduct Plant" by L. A. Whitney
13 — "Preparation of Fire Insurance Valuations" by E. J. Burrows
14 — "Business and Building in the Bigger Years Ahead" by G. C. Smith
15 — "Cost Engineering in Education" by A. R. Konecny
16 — "Estimating Capital Costs from Process Flow Sheets" by W. E. Hand
17 — "Lightweight Aggregate Concrete" by W. W. Allen, Jr.

The Association is endeavoring to publish in the BULLETIN or make available reprints of papers that are related to the field of Cost Engineering. If you are preparing a paper or have presented previous papers in this field please send a copy to the Executive Secretary so that it can be included in future surveys of data in this area.

Definitions of Major Terms in Cost Code

American Association of Cost Engineers	AACE PROVISIONAL STANDARD	No. T-S-1 Sheet 1 of 1
Date: 6/1/58		
Remarks:		Code

Direct Costs — Direct costs are costs incurred for *direct material* and *direct labor*.

Direct Material — Comprises all material (including waste) which enters into and becomes a part of the finished product or fixed asset provided that the cost of such material can be identified and assessed against a particular part, product or group of parts or products accurately and without undue effort and expense.

Direct Labor — Comprises work associated with direct material provided the cost of such work can be identified and assessed against a particular part, product or group of parts or products accurately and without undue effort and expense.

Battery Limits — Comprises one or more geographic boundaries, imaginary or real, enclosing a plant or unit so as to include only those facilities directly involved in the processing of feed material to product.

Utilities — Comprise those facilities located outside the battery limits which enter into the provision or removal of energy, water or waste to or from battery limits, storage and handling and service areas.

Storage and Handling — Comprise those facilities which enter into the storing, loading or unloading of feed materials intermediate or finished products.

Services — Comprise those facilities located outside battery limits which are not included in the definitions of Utilities and Storage and Handling.

Bibliography Questionnaire

If you have not mailed your AACE Bibliography Questionnaire to James B. Weaver, please do so at once so that the results of the survey can be made available to the membership at the earliest possible date. Thank you for your cooperation in enabling this committee to act on your suggestions.

AACE Insignia

A novel distinctive sterling silver tie-clasp and lapel button has been designed for members of the AACE. You will be proud to wear this personal jewelry which features the attractive AACE emblem.

The initial order was depleted at the annual meeting in Cleveland. If you were one of those persons who was unable to obtain your insignia at that time, or did not get to the meeting, you can order these items now. The price is $2.30 for the lapel button and $3.80 for the tie-clasp, postage is included.

Remit to:

American Association of Cost Engineers
Durham, New Hampshire

Proposed AACE Cost Codes of the American Association of Cost Engineers

COMMITTEE ON COST RECORDS

E. F. O'CONNELL — Chairman

Before a method of recording and keeping Cost Records is determined, which is the backbone of all estimates, it is necessary that a Cost Code be established.

At the meeting in Durham, in 1957, the general format of an "AACE Capital Cost Codes," Form 10, and an "Estimate and Cost Report," Form 20, was submitted and distributed to members present and fellow members of the Sub-Committee on Cost Records. Since no radical, adverse comments were made, it is felt that this general format should be used and elaborated upon.

The use of AACE Cost Codes, or Code of Accounts, has many advantages. The following are a few of these:

1. Universal Language

Provides a common understanding between all companies, divisions and departments.

2. Return Cost

The final costs of a job when reported in accordance with this "AACE Cost Codes" will yield unit costs which will enable an estimator to make more accurate estimates.

Unit cost derived from return cost reports will enable the development of weighted factors for use in progress determination. Quantities reported after the completion of engineering will be more accurate than estimated quantities.

3. Progress

A form prepared in accordance with the AACE Cost Codes which list estimated quantities of material can be checked periodically against the quantity installed. For example, if the estimate shows 50 tons of steel are to be erected, aligned and grouted with 25 tons now erected, aligned and grouted, it is fairly accurate to assume that this item which is say 5% of the total project is 50% done. This effects an over-all percent complete of 2.5%. This method is more accurate than noting that 60% of the estimated funds have been spent and therefore 60% of this 5% item should be considered complete.

4. Scheduling

When an estimate is made in accordance with a "Standard Cost Code," which indicates readily the quantities of concrete to be poured, steel to be erected, etc., it is easier and quicker to prepare an accurate schedule.

5. Accounting

The use of an "AACE Cost Code" would enable all accounting departments to record costs in the same manner. This in turn gives meaning to costs when comparing one project to another.

6. Requisitions and Purchase Orders

When requisitions are coded in accordance with a standard cost code, and cross referenced to purchase orders, the filing and cost reporting by all others affected is quicker and more accurate.

7. Flow Sheets

The starting point in the identification of equipment begins with those responsible for the making of flow sheets. If they identify equipment in accordance with a standard cost code, the Estimators would than follow up. A few examples of such a number system are as follows:

3 pumps would be:	0003-501 0003-502 0003-503
2 compressors would be:	0003-510 0003-511
3 bucket elevators would be:	0003-601 0003-602 0003-603
2 vaporizers would be:	0003-756 C003-757
2 shell and tube exchangers would be:	0003-201 0003-202

8. Machine Accounting

The proposed "AACE Cost Code" can be easily converted to any system of machine accounting with ample provisions for expansion.

9. Estimator's Check List

It is possible for an Estimator to catch items which could easily be overlooked.

The "Estimate and Cost Report," Form 20, should be issued monthly or at mutually agreed times, by the Contractor or Engineer-Contractor. This form gives the complete status of the project, both for quantities and costs of all materials, equipment and labor. When the final report is issued, it will have the total number of units, individual costs, total costs and will show if the final cost is under or over the official estimate and approved changes.

The proposed Cost Code is divided into five Major Areas, with each area designated by the first digit of the Code Number, 1000-000, 2000-000, 3000-000 and so forth. Each major area is then subdivided into Major Sections which is designated by the second digit of the Code Number, 1100-000, 1200-000, 2100-000, 4100-000, etc. The Major Sections are further subdivided into Cost Elements which are designated by the third and fourth digit of the Code Number, 1100-000, 1200-000, 1400-000, etc. Finally, the cost elements are subdivided further into sub-accounts. These sub-accounts carry the fifth, sixth and seventh digit of the code number, 1100-000, etc.

The Sub-Accounts can be broken further than that indicated in the following examples, i.e., Building Substructure 0001-100, can be subdivided to -110 Excavation, -120 Backfill, -130 Forms, -140 Reinforcing Steel, etc. Similarly Superstructure can be broken down further to -230 Structural Steel, -241 Masonry, -260 Roofing, -235 Prefabricated Building, etc.

The following is a broad description of what is included in each of the various divisions and subdivisions.

MAJOR AREAS

1000 **Battery Limits** — Comprises one or more geographic boundaries, imaginary or real, enclosing a plant or unit so as to include only those facilities directly involved in the processing of feed material to product.

2000 **Storage and Handling** — Comprise those facilities which enter into the storing, loading or unloading of feed materials, intermediate or finished products.

3000 **Utilities** — Comprise those facilities located outside the battery limits which enter into the provision or removal of energy, water or waste to or from battery limits, storage and handling, and service areas.

4000 **Services** — Comprise those facilities located outside battery limits which are not included in the definitions of Utilities and Storage and Handling.

5000 **Distributive Items** — Comprises field supervision and administration, telephone, stationery, office equipment, etc.; purchasing, expediting, insurance and taxes, tools construction equipment and supplies, field office, change house, etc.; sanitary facilities, temporary piping, so forth; engineering and drafting, overhead and fee, mechanics fringe benefits, permits, premium time, bonus, start-up and so forth.

0000-000 **MAJOR SECTIONS** — would comprise sections of a project such as Oxygen Plant, Carbide Plant, Acetylene Plant and so forth. Each section or division would carry a section number which would be the second digit of the Code Number, 1100-000, 1200-000, 1300-000, etc.

0000-000 **COST ELEMENTS** — would comprise elements which can be related to any of the major sections and would be indicated by the third and fourth digit of the cost code, 1101-000, 1206-000, etc.

0000-000 **SUB ACCOUNTS** — would comprise subdivisions of the cost elements and would be indicated by the fifth, sixth and seventh digits of the Cost Code, 1000-**110**, 2222-**220**, etc.

By combining the Code Numbers of the five divisions, any item can be coded from the Major Area through the Sub Account.

Each code shall be used for Labor, Material and Sub Contracts when applicable.

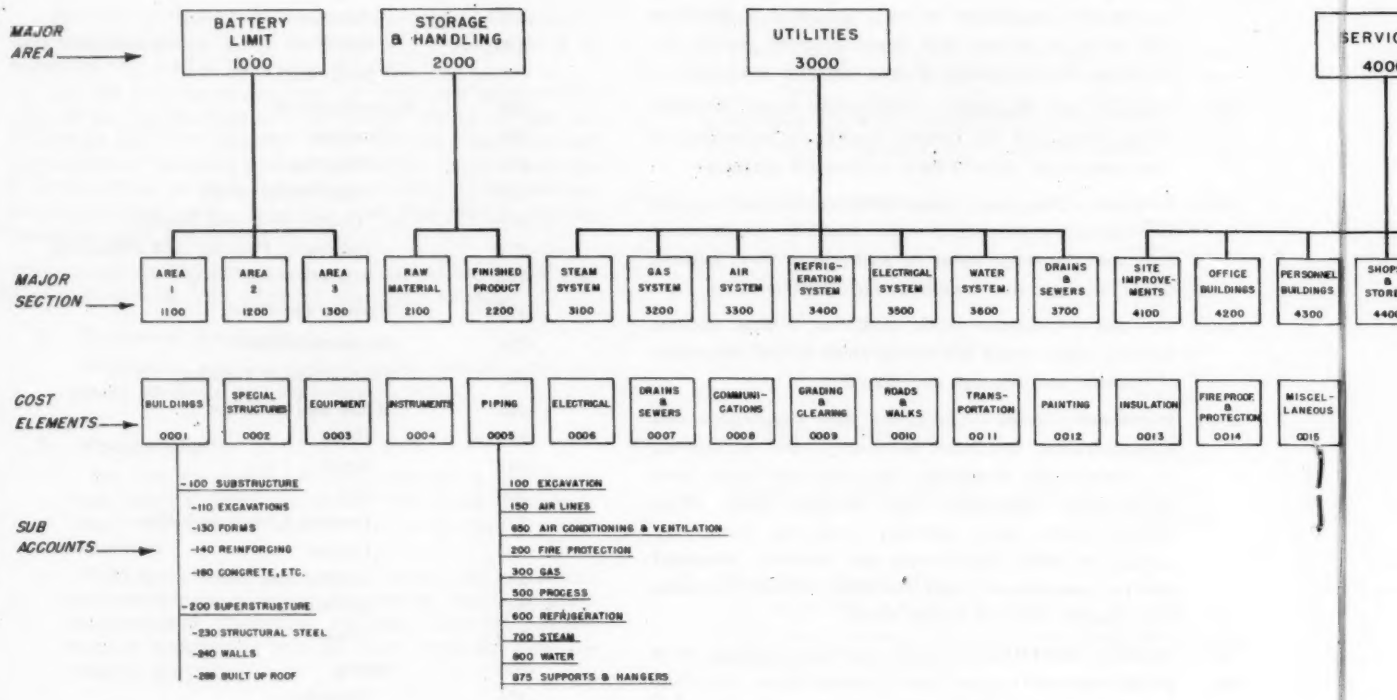
Example: The code number for reinforcing steel, within the Battery Limits, oxygen plant, Producing Building would be 1101-140, for Storage Tank in the Storage and Handling area, Carbide Plant, 2200-301.

COST ELEMENT
0001 - BUILDINGS

SUB ACCOUNT	
-100	**Substructure**
-110	Excavation
-120	Backfill
-130	Forms
-140	Reinforcing Steel
-150	Anchor Bolts and Inserts
-160	Concrete, Pouring and Finishing
-170	Dewatering
-180	Floor Surfacing
-181	Asphalt
-182	Terrazzo or similar
-183	Other — (such as colored floor topping, etc.)
-200	**Superstructure**
-210	**Concrete**
-211	Forming
-212	Reinforcing Steel
-213	Anchor Bolts and Inserts
-214	Concrete, Pouring and Finishing
-215	Miscellaneous Steel
-220	**Precast Concrete**
-230	**Structural Steel**
-235	**Prefabricated Building**
-240	**Walls and Ceilings**
-241	Block
-242	Brick
-243	Tile
-244	Precast Lintels and Sills
-245	Plaster
-246	Accoustical Tile
-247	Insulation
-248	Other
-250	**Siding**
-251	Transite
-252	Corrugated Sheet Metal
-253	Insulated Panels
-260	**Roofing**
-261	Transite
-262	Corrugated Metal
-263	Roof Insulation
-265	Steel Pans
-266	Precast Slabs
-267	Poured Roof
-268	Built-up Roof
-269	Flashing, Gutters, Down Spouts, etc.
-270	**Doors**
-275	**Sash**
-280	**Fireproofing**
-281	Poured
-282	Gunite
-283	Brick
-291	**Painting - Interior**
-292	**Painting - Exterior**
-300	**Heating, Ventilation and Air Conditioning**
-310	Heating
-320	Ventilation
-330	Air Conditioning
-400	**Plumbing**
-500	**Lighting**
-600	**Cranes, Hoists, Trolleys and Elevators**
-700	**Sprinkler System**
-800	**Furniture and Fixtures**

FORM II

A.A.C.E. COST CODE



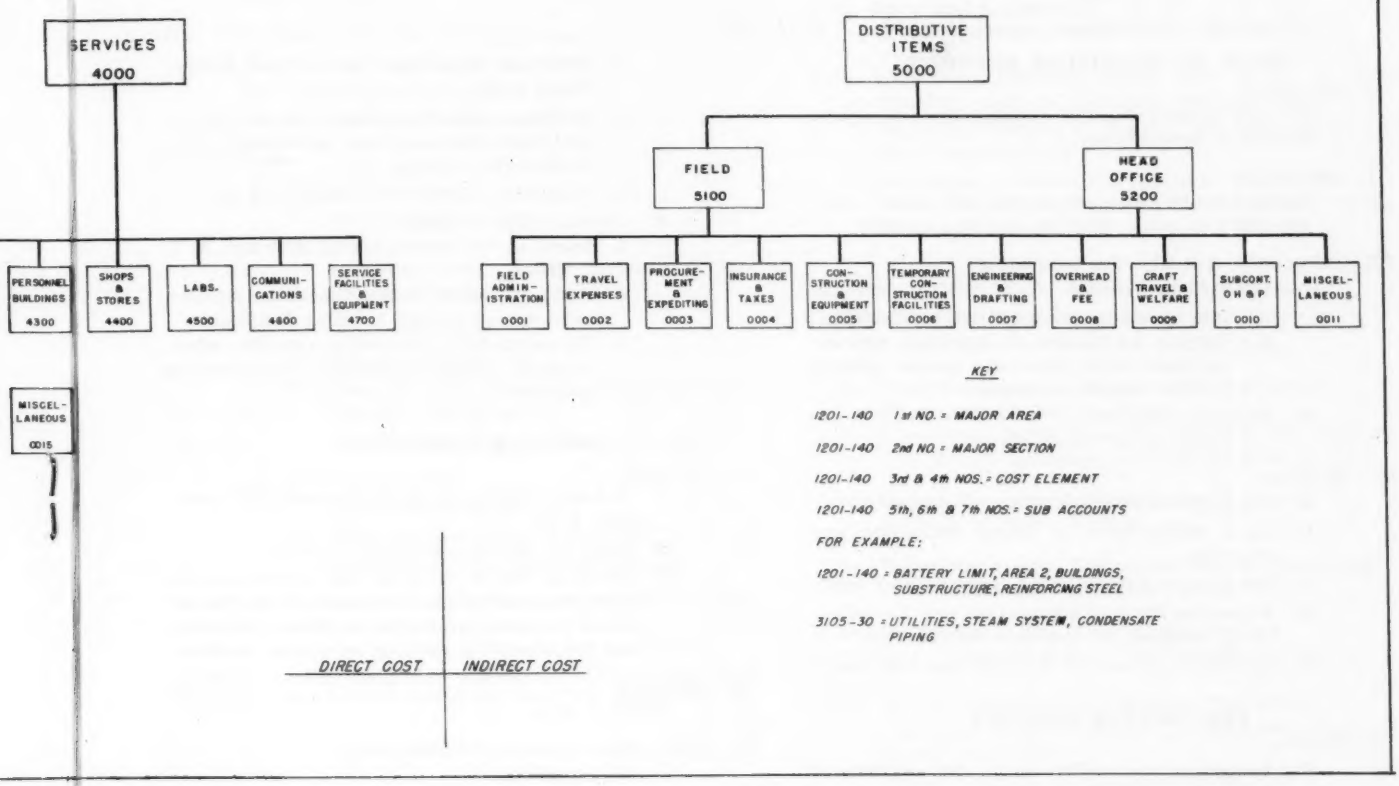
FORM - 20

ESTIMATE AND COS

PROJECT_____ LOCATION_____

ACCT.	ITEM		UNIT	EXPENDITURES			COMMITMENTS			TOTAL EXPEND. & COMMIT.	TO COMPLETI		
				QUANTITY	UNIT COST	AMOUNT	QUANTITY	UNIT COST	AMOUNT		QUANTITY	UNIT COST	AMO
1101-140	Reinforc. Steel	M	tons	5	90.	450	4	90	360	810	10	90	
		L		5	130	650	—	—	—	650	14	130	18
2103-501	Pump	M		1	500	500	—	—	—	500	—	—	
		L	MH	—	—	—	—	—	—		60	3	1

COST CODES



KEY

1201-140 1st NO. = MAJOR AREA

1201-140 2nd NO. = MAJOR SECTION

1201-140 3rd & 4th NOS. = COST ELEMENT

1201-140 5th, 6th & 7th NOS. = SUB ACCOUNTS

FOR EXAMPLE:

1201-140 = BATTERY LIMIT, AREA 2, BUILDINGS, SUBSTRUCTURE, REINFORCING STEEL

3105-30 = UTILITIES, STEAM SYSTEM, CONDENSATE PIPING

DIRECT COST | INDIRECT COST

AND COST REPORT

APPROP. NO. _____ DATE _____ SHEET ____ OF ____

D COMPLETE			TOTAL REVISED ESTIMATE			PREVIOUS REVISED ESTIMATE	OFFICIAL ESTIMATE AND CHANGES					OVER (UNDER)	ACCT.
							OFFICIAL ESTIMATE			APPROVED CHANGES	TOTAL		
	UNIT COST	AMOUNT	QUANTITY	UNIT COST	AMOUNT		QUANTITY	UNIT COST	AMOUNT				
90	900	19	90	1710			17	110	1870	—	—	(160)	1101-140
130	1820	19	130	2470			17	160	2720	—	—	(250)	
—		1	500	500		—	1	550	550			(50)	2103-501
3	180	60	3	180		—	50	3	150			(30)	

ESTIMATE TYPES

A Proposal by the Estimating Methods Committee
J. M. Gorey -- Chairman
(Study No. 1 -- Estimate Types; Draft No. 2, 4/17/58)

ORDER OF MAGNITUDE ESTIMATE

I. Purpose:
For management decisions on feasibility before justification of further study.

II. Accuracy:
Highly variable (as much as 50% high to 100% low) depending on scope definition and time allotted.

III. Information Available For Estimating:
- A. Grass Roots Projects:
  1. Type, quantity and quality of product(s).
  2. Varying information on individual processing steps; major equipment possibly defined.
  3. Location may be determined.
- B. Expansion Projects:
  (Same as A. 1, 2, 3, above)

IV. Methods:
- A. Capacity Investment Curves (cost/capacity).
- B. Ratio extropolation if defined equipment lists available.
- C. Building Projects on rough $/square foot basis.
- D. Expansion Projects adjusted for any known existing facilities, i.e., available services, etc.
- E. Conversion factors for location, time and size.

PRELIMINARY ESTIMATE

I. Purpose:
For budget proposals either as the first estimate of a project or as a follow-up of an Order of Magnitude Estimate.

II. Accuracy:
Variable (to ± 40%) depending on scope definition.

III. Information Available For Estimating:
- A. Grass Roots Projects:
  1. Type, quantity and quality of product(s).
  2. Approximate utilities, services and storage and handling requirements.
  3. Preliminary flow charts, plot plans, layouts, with varying degrees of information on
     - a. Equipment type, size and materials of construction.
     - b. Building space requirements.
  4. Location specified, general site conditions known.
- B. Expansion Projects:
  1. Same as for "Grass Roots", Para. A, 1, 2, 3, 4, above.
  2. Preliminary information on integration possibilities with existing facilities.

IV. Methods:
- A. Battery Limits Estimate:
  1. Equipment Items individually estimated.
     - a. Curves based on an equipment variable (i.e., pumps on a capacity — head basis, etc.).
     - b. Unit cost (i.e., tanks on a cost/lb. of tank, etc.).
  2. Ratio up Equipment cost to give Battery Limit cost.
  3. Building projects estimated on a $/square foot basis with component adjustments. (Air conditioning, lighting, etc.).
  4. Conversion factors for location and time.
- B. Overall Project Estimate:
  1. Same as for Battery Limits estimate, A, 1, 2, above.
  2. Ratio up battery limit estimate for utilities, services and storage handling facilities.
  3. Where adequate information available, adapt as many "Definitive Estimate" techniques as practical.

DEFINITIVE ESTIMATE*

I. Purpose:
- A. For appropriation of funds, or to establish a contract price.
- B. Basis for project cost status reports.
- C. Establish format for final cost reports to aid accounting and provide feed back information on actual costs for utilization in future estimates and for improving existing estimating methods.

II. Accuracy:
Within ± 10%

III. Information Available For Estimating:
- A. All project types:
  1. Definitive production capacities.
  2. Definitive utilities, services and storage and handling requirements.
  3. Final flow and plot plans along with:
     - a. Complete equipment list with specifications.
     - b. Non-equipment items specified (i.e., piping, etc.).
     - c. Preliminary architectural drawings for building projects with accessories specified (i.e., heating etc.).
  4. Estimate type necessitates location.

IV. Methods:
- A. Equipment items:
  1. Firm or preliminary quotes.
     - a. Labor based on craft manhours or historical data.
- B. Non-equipment items:
  1. Quantity by rough take-offs. Specifications for pricing basis.
     - a. Labor, same as for equipment items.
- C. Building projects:
  1. Rough structural and finishing quantities takeoff price on a unit cost basis.
  2. Accessories detailed.
- D. Conversion factors for location and time, if necessary.

* Direct cost components only. Indirect costs will be included when Terminology and Cost Code Committees define their scope.

DETAILED ESTIMATE*

I. Purpose:
To establish a contract price.

II. Accuracy:
Within ± 5%

III. Information Available For Estimating:
- A. Detailed engineering completed.
- B. Project schedule established.
- C. Sub-contractor's bids available.

IV. Methods:
- A. Equipment items:
  1. Sub-contractor's bids.
  2. Firm quotes
     - a. Labor based on craft manhours or historical data.
- B. Non-equipment items:
  1. Sub-contractor's bids.
  2. Take-offs from detailed drawings, Specifications for pricing basis.
     - a. Labor, same as for equipment items.
- C. Building projects:
  1. Sub-contractor's bids.
  2. Take-offs from detailed drawings.
  3. Accessories either quoted or detailed.
- D. Conversion factors for location and time applied where necessary above.

* Direct cost components only. Indirect costs will be included when Terminology and Cost Code Committees define their scope.

Second Annual Meeting

Cleveland was in the limelight from June 16-18, 1958. Two hundred and one members and guests together with their wives and children, gathered at Case Institute of Technology for the Second Annual Meeting of the AMERICAN ASSOCIATION OF COST ENGINEERS. An excellent technical program, arranged by Vice-President Charles R. Hirt and his committee, featured addresses by a number of outstanding cost engineers. Through the hospitality of the host, Northeast Ohio Section, and the efficiency of Allan P. Stern, chairman of Convention Arrangements and his committee, the varied selection of activities offered, rounded out the well planned program.

Sunday, June 15, 1958

AACE Board of Directors had its first of a series of daily meetings. Board action included the approval and recognition of the Delaware Valley and Chicago-Midwest Regional Sections, and the authorization of the publication of a Bulletin that would contain technical papers in addition to Association news.

Monday, June 16, 1958

MONDAY MORNING SESSION — Tomlinson Hall Ballroom

Presiding: Charles R. Hirt, Vice President of AACE and Chairman, AACE Program Committee.

9:00 **Business and Building in the Bigger Years Ahead**
Dr. George Cline Smith, F. W. Dodge Corp.

9:45 **Cost Engineering in Education**
Anthony R. Konecny, Case Institute of Technology

10:30 Coffee Break

10:45 **Completed Staff Work — A Responsibility of the Cost Engineer**
Wilbur R. Meredith, Case Institute of Technology

11:15 **Ratio Cost Engineering**
H. Carl Bauman, American Cyanamid Co.

12:15 Luncheon — Ballroom, Tudor Arms Hotel
Presiding: John W. Hackney, President AACE
Welcome: William J. Hanlon, President, Northeast Ohio Section AACE
Welcoming Address: Dr. James R. Hooper, Jr., Director of Special Programs, Case Institute of Technology

MONDAY AFTERNOON — Two Concurrent Sessions

Construction Cost Session — Tomlinson Hall Ballroom
Presiding: William R. Thompson, Bechtel Corp.

1:30 **Ratio Estimating as Applied to Fluid Process Plants and Auxiliary Facilities**
Norman G. Bach, Monsanto Chemical Co. (read by J. C. Cowan, Columbia-Southern Chemical Corp.)

2:00 **Cost of Preparing A Construction Estimate**
Kenneth G. Wolfe, Bechtel Corp.

2:30 **Estimating Capital Costs from Process Flow Sheets**
William E. Hand, Shell Development Co.

Discussion Session — Rm. P201, Physics Building
Presiding: Robert E. Fithian, El Paso Natural Gas Co.

1:30 **How to Organize an Estimating Department**
Discussion Leader, Harold J. DeLamater, Chemical Construction Corp.
Panel: Kenneth A. Anderson, Procon, Inc.
G. William Boston, Girdler Construction Div.
Joseph Bleakie, Tellepsen Construction Co.
H. Carl Bauman, American Cyanamid Co.

2:30 **Selecting the Estimating Method**
Discussion Leader, Clifford E. Zearfoss, Hydrocarbon Research, Inc.
Panel: Jay M. Gorey, Esso Research & Engineering Co.
Addison W. Seekins, Columbia-Southern Chemical Corp.
William H. Patterson, The Procter & Gamble Co.

4:00 Industrial Valley Boat Excursion

4:00 Committee Meetings

MONDAY EVENING — Tudor Arms Ballroom

7:30 Cocktails

8:00 Dinner — Invocation: Rev. Howard J. Kerner, S.J., John Carroll University
Toastmaster: Dr. Bernard J. Gaffney, Rust Engineering Co.

Presentation of AACE Award of Merit for 1958.

Inflation — The Fifth Horseman
Robert W. Coan, Cleveland Electric Illumination Co.

Nominations for 1959 Meeting Location
Impassioned invitations by Houston, Texas, and Pittsburgh, Pennsylvania were heard by the membership.

SECOND ANNUAL MEETING--*Continued*

Tuesday, June 17, 1958

TUESDAY MORNING SESSION — Tomlinson Hall Ballroom

Presiding: Howard R. Alexander, Mead Johnson & Co.

9:00 **The Electronic Digital Computer**
H. W. Powell, International Business Machines Corp.

10:00 **Putting the Digital Computer to Work on Cost Data**
Charles J. Bauman, John F. Meissner Engineers, Inc.

10:30 Coffee Break

10:45 **Computer Processing in Preliminary Economic Evaluations**
James F. Adams, Monsanto Chemical Co.

11:15 **Statistics, Computers and Cost Control**
Dr. Arthur A. Brown, Arthur D. Little, Inc.

12:15 Luncheon — Tudor Room, Tudor Arms Hotel

TUESDAY AFTERNOON — Three Concurrent Sessions

Computer Demonstrations — Case Computing Center

Presiding: Howard R. Alexander, Mead Johnson & Co.

Three tours were conducted through the new Case Computing Center. Dr. Raymond J. Nelson, Director of the Computing Center, directed the tours. H. W. Powell of International Business Machines Corp. assisted with actual problem demonstrations on the computer.

A group of Cost Engineers learn about computers at the Case Institute of Technology.

Profitability Session — Room P201, Physics Building

Presiding: William E. Hand, Shell Development Co.

1:30 **Joint and By-Product Costing**
Arthur F. Dershowitz, General Electric Co.

2:15 **Optimum Profits from a Multiproduct Plant**
Lee A. Whitney, Champlin Oil & Refinery Co.

3:00 **Preparation of Fire Insurance Valuations**
E. J. Burrows, Columbia Gas System Service Corp.

Construction Cost Session — Tomlinson Hall Ballroom

Presiding: Donald I. Meikle, John F. Meissner Engrs. Inc.

1:30 **Economics of Construction using Light-Weight Aggregate**
W. W. Allen, Jr., Hydraulic Press Brick Co.

2:15 **Relationship of Cost to Property Evaluations**
W. Y. Armstrong, American Appraisal Co.

3:00 **How the Steel Fabricating Industry Strives for Greater Economy in Construction**
H. J. Stetina, American Institute of Steel Construction

4:00 **Committee Meetings**

TUESDAY EVENING

5:00 **Cleveland Municipal Stadium** — Behind-the-Fence Dinner Party and Baseball Game (Cleveland Indians vs. New York Yankees)

8:30 **Musicarnival** — Broadway production of "Most Happy Fella"

Wednesday, June 18, 1958

WEDNESDAY MORNING SESSION — Tomlinson Hall Ballroom

Presiding: John W. Hackney, President AACE

9:00 **Business Meeting**

President J. W. Hackney reported on the Board of Directors' meetings (highlights of which are covered elsewhere in this program). He especially noted that "The Board and I take this occasion to express our heartfelt thanks to all of those individuals who are so materially contributing to the rapid advance of the Association".

10:30 Coffee Break

10:45 **Reports of Committees and Regional Sections**

Enthusiastic reports of activities and plans for the future were presented:

A bibliography questionaire will be distributed to ascertain the opinions of the membership on future activities in this area.

A Publication Policy is nearing its final draft.

A quarterly **Bulletin** was in the works.

Reciprocal arrangements with other Technical societies for the dissemination of technical information were in progress.

An outline of the essentials of Cost Engineering will be distributed to the engineering departments of all colleges and universities.

AACE jewelry has been enthusiastically received and the idea of a membership certificate is being explored.

Higher standards for membership in the AACE were explained and would be one of the items on the forthcoming ballot.

New regional sections have been established and others are being organized.

A "Program for the Future" was outlined by the Planning Committee.

11:45 Balloting for 1959 Location
Pittsburgh, Pennsylvania was selected as the site of 1959 Annual Meeting, while 1960 will find us meeting in Houston, Texas.

12:15 Luncheon — Tudor Room, Tudor Arms Hotel

WEDNESDAY AFTERNOON SESSION — Tomlinson Hall Ballroom

1:30 **AACE Program for the Future**
Dr. Bernard J. Gaffney, Chairman, AACE Planning Committee

2:00 **Technical Committee Reports**
Presiding: C. Arthur Miller, Director-Sponsor, AACE Technical Committees
A Proposed Standard Cost Code
C. Arthur Miller, Canadian Industries, Ltd.
Definitions of Major Terms in Cost Code
David Seltzer, The Lummus Company
Classification of Estimate Types
William H. Patterson, The Procter and Gamble Co.
Heat Exchanger Cost Data
Harold J. DeLamater, Chemical Construction Corp.
Report on Cost Indexes
James J. Caufield, The Girdler Company

4:00 **Recapitulation**
John W. Hackney, President AACE
Diamond Alkali Company

No Place for Dollar Illiterates

Says President John W. Hackney in His Recapitulation

This is the age of explosive expansion for science and engineering. Like the westward sweep of the American Frontier, the frontier of technology is swinging through exciting new areas of knowledge and power.

In the excitement of this advance, however, there have been left occasional undeveloped areas. Events of the past few years suggest that among these areas may be those involving costs and profitability. We have been so busy deciding what new things can be done, and how they can be done, that we have sometimes neglected the prosaic questions of how much they will cost and how much income they will produce.

This is especially unfortunate since, with this explosive growth and branching of engineering techniques, the difficulty of estimating costs and profitabilities has grown in proportion. Men with a broad knowledge of engineering, combined with judgement and some knowledge of construction and accounting practice are required to solve these increasingly difficult cost and profitability problems. There is no place here for engineers who are "dollar illiterates".

Somewhat belatedly, and perhaps encouraged by difficult economic times, the Cost Engineer has therefore been pushed upon the scene. I say "pushed", because in many companies the situation is like that which develops in a schoolroom when the blackboards are to be cleaned and the teacher says, "Are there any volunteers? — If not, then I shall appoint some".

It is only natural that these "volunteers", pushed into a new and unfamiliar area, should seek the advice, counsel and comfort of others. Therefore the American Association of Cost Engineers, under the guidance of Dr. Zimmerman and Dr. Lavine, organized on a hot summer day in 1956 at the University of New Hampshire. Appropriately enough, the group was in shirt sleeves.

At times during the two years since that organization meeting, it has seemed that the members were finding "comfort" in their association, but not so much "advice and counsel". Timidly approaching the experts in the field, they found the experts to be just as timidly approaching them in the belief that they were the experts. So during the first two years the Association grew ten-fold and prospered, as is fitting for such a group, but the output of technical data was at times disappointingly small.

With this Second Annual Convention, this situation has changed dramatically. The Program Committee has spread for the members a three-day series of technical sessions touching almost every area of Cost-Engineering — a program so full that we may have some split personalities developing from the simultaneous sessions.

The Association's major project for the balance of the year will be the firm establishment of the Association *"Bulletin"*. This will include news of local sections, including we hope one in England; employment information for Cost Engineers; personal notes; news of Association affairs and, most important, technical articles covering the cost field.

The future looks bright for the Association. It will be bright in proportion to the service which is rendered to the members, and the service which the members render to the Association.

It is no small thing to be joined with a group of men who, by thorough understanding of their jobs can keep our industries out of losing projects and guide them toward the profitable ones. Our whole society benefits by their faithful performance.

Things Aren't What They Used To Be

Says Cecil H. Chilton in Accepting the AACE Award of Merit

"Barney Gaffney must have known what was in my mind when, a few minutes ago, he paraphrased Carl Bauman's statement to say that cost estimation is an old man's responsibility.

Because what pleases me most about being chosen to receive the AACE Award of Merit for 1958 is that I have always assumed that such honors were reserved for old men, or maybe middle-aged men, but never for young men.

However, since I got Norman Bach's wire informing me of my selection, I have begun to notice some strange things:

Everything is further than it used to be. It's twice as far from my house to the Long Island station now, and they've recently added a hill that wasn't there before. The trains leave sooner, too, but I've given up running for them because they go faster than they used to.

Presentation of AACE Award of Merit for 1958 is being made by President John W. Hackney to Cecil H. Chilton, Senior Associate Editor of **Chemical Engineering** whose many articles on cost engineering have been a major contribution to this growing field. Mr. Chilton holds a slide rule which was also presented to him along with the certificate.

Seems to me they are making staircases steeper than in the old days. The risers are higher, and there are more of them, because I've noticed it's harder to make two at a time. In fact, it's all I can do to make one step at a time.

Have you noticed the small print they are using lately? I have to squint to read my evening newspaper. I really don't need glasses, but it's the only way I can find out what's going on, unless someone reads aloud to me, and that isn't much help because everyone seems to speak in such a low voice I can scarcely hear them.

Even the weather is changing. It's getting colder in the winter, and snow is much heavier than it used to be. The rain wetter, too; I wear rubbers here of late. And I guess the way they build windows now makes drafts more severe.

People are changing, too. For one thing, they are younger than they used to be when I was their age. On the other hand, though, people my own age are much older than I am. I realize my generation is approaching middle age (to me that is roughly between 20 and 101), but there is no reason for my classmates tottering blissfully into senility.

I ran into a former roommate of mine at the meeting today, and he had changed so much that he didn't recognize

(Continued on Page Eighteen)

COST INDEX SURVEY

REPORT OF THE COST INDEX COMMITTEE

By J. J. CAUFIELD, Chairman,

DELIVERED AT THE SECOND ANNUAL MEETING OF THE AACE

What sources of index information does the Cost Engineering Profession use, how do we use indexes, what do we think of indexes, and what can we do about it?

These were the broad questions which the AACE Cost Index Committee hoped to answer by means of the Index Survey conducted early this year.

If there is a typical Cost Engineer, (which we doubt) the Survey reveals the following facts about him, and his relationships with cost indexes:

First — He is a regular user of indexes in his work, and probably follows at least two regularly published ones.

Second — By his own admission, he has a pretty vague understanding about how these indexes are computed, what they mean, and how they should be used.

Third — He is doubtful and suspicious of the validity of the indexes for his own special purposes. He feels that they are so broadly based that they are not applicable to his particular problems.

Fourth — He feels that someone, somewhere, should be producing a better index which **would** exactly fit his **own** industry and be **directly applicable** to his own problems.

In outlining the attitudes and practices of this typical Cost Engineer, we are admittedly guilty of generalization and over-simplification. So lets take a look at the specific results of the Cost Index Survey.

The survey questionnaires were mailed to the entire active membership of the AACE and about 150 responses were received from individual members. The answers ranged in detail all the way from very elaborate and informative reports to comments of one syllable. One member mailed in a completely blank questionnaire form, indicating I suppose, his feeling on the subject. In general, however, it was apparent from the thoughtful and detailed answers that a lot of reflection and know-how were applied to the questions.

The questionnaire itself was made up of subjective type questions arranged in 3 parts: We will look at each part, and mention the most predominant answers.

STUDY PROJECTS

The first part had to do with studies and research which might be aimed at achieving a better understanding of indexes. A lot of good suggestions were received on specific study projects which might be undertaken. There was one comment, however, that came up like a roar from practically every responding member: "Give us comprehensive reference material on the major indexes. Tell us in a consistent and comparative way what each index is based on, how it is calculated, what it is meant to show, how it is defined, what are its limitations, and what is its history?"

The survey results were nearly unanimous on this point. Practically everyone who answered would like to have, between two covers, an explanation of our major indexes in both detail and depth.

Other suggestions, and this is by no means a complete list, were —

- — Through a statistical approach, establish limits of confidence for major indexes.
- — Develop a common language of index terminology.
- — Recommend a standard way for a Company to maintain a private index for their own particular industry.
- — Develop a bibliography on the Index literature.
- — Make a statistical correlation between the indexes, and try to account for variations.

Other suggestions were received at this point, requesting the development of new indexes of one kind or another, most of them aimed at special industries, localities or situations. There was a considerable interest in the comparison of costs and productivity between geographical areas, both within the United States and internationally.

INDEX EVALUATION

The second part of the Survey had to do with the evaluation of existing cost indexes as to the extent and nature of their use, and their capabilities and limitations as cost engineering tools.

We found the cost engineers using about 300 published indexes and 10 private ones. Of those using published indexes, the heaviest usage by far was accorded the *Engineering News-Record* Indexes, the *Marshall and Stevens* Index and the *Nelson* Index. These three combined outscored the other 27 by a factor of about 3 to 1.

The principal uses reported for index information besides updating cost estimating data were, forecasting of trends, escalation of contracts, updating appraisals, evaluating productivity, and comparing operating and maintenance costs.

The main limitations and shortcomings which were mentioned were —

"The indexes we have are too broadly constructed, and do not fit my case". This was a very common reaction.

"They come out too late"

"They don't apply to my particular locality"

"They don't reflect technological improvement, management factors, and fringe benefits".

"They are inaccurate"

In discussing the limitations of indexes, we must mention one voice in the wilderness of limitations which said —

"If all of our estimating information were as good as our indexes, we would be in good shape".

AACE INDEX?

The third part of the survey had to do with the desirability and feasibility of establishing an AACE index or indexes. This turned out to be a subject on which there were definite opinions. The first question was "Do you think the AACE as such should be in the index producing business"? Yes or No? Why or Why Not? The opinion was about 2 to 1 **against** the AACE as such operating an index. Some of the more prevalent reasons were — "Too Expensive", "We haven't the Staff", "It would be risky", "Just another index — lets work on the ones we have", "We have no history" — "Duplication of Effort".

Some of the more popular reasons **in favor** were — "It could be specialized" — "It could be coordinated" — "It would add to our prestige" — "We are the main consumers, therefore, we should produce indexes".

The second question dealt with the possibility of the AACE acting as advisers to the regular producers of indexes. The response here was one of about 4 to 1 in favor of our outlining our needs and demonstrating our demand for more specialized indexes from the regular producers.

The third question was on the matter of the AACE developing an index standard by means of which a publisher could operate an AACE Index. The opinion here was about 2 to 1 in favor of our doing this, although there were some sincere expressions of misgiving.

PLANS UNDERWAY

The Cost Index Committee has concluded that the most pressing need of the Cost Engineering profession is education on indexes rather than the establishment of additional indexes. We feel that our membership has stated their need for better understanding of existing index material, rather than for the publication of more figures in a field where skill in interpretation and use has not kept pace with publication of data. Accordingly, the Cost Index Committee plans to undertake the following projects:

1. As a starting point the Cost Index Committee will undertake to compile a comprehensive "digest type" report on the published indexes, and make it available for publication through regular Association channels.
2. In connection with the report mentioned above, the Cost Index Committee will work toward the establishment of standard index terminology and will develop a bibliography on index literature.
3. The Cost Index Committee will collect a manual of special reports, starting with the material which has already been submitted as a result of this survey. The manual will be turned over to the Executive Secretary for control but will be available to the membership.
4. The Cost Index Committee will undertake to establish a guide for setting up private indexes to fit specific industries and situations.

The projects outlined here have short or medium range objectives, and we think that they are attainable within the limits of our present resources. We are hopeful that the Board and the Membership will approve of what we think to be a practical approach.

The Cost Index Committee will continue to study the results of this survey, and will appreciate further comments from members. In the meantime, we do wish to thank everyone who participated, and particularly those who offered or sent the very valuable supplementary material.

News from the Regions

CHICAGO-MIDWEST SECTION

At the 2nd Annual Meeting of the AACE the Chicago-Midwest Section was officially approved for operation within the framework of the AACE.

Program Schedule for Monthly Meetings.

October 2, 1958:

"Reports and Comments on Annual Meeting of the AACE" also "Discussion of Estimating Data and Cost Feedback" Moderator Mr. D. Brink, Chairman, Chicago Midwest Section.

November 6, 1958:

"Cost Engineering Education, its Responsibilities to the Profession and Vice Versa". Speaker, Mr. Dick Shaffer, Department of Civil Engineering, University of Illinois.

December 4, 1958:

"Contractors' Problems in Cost Estimating" Discussion panel by Mr. Kenneth Anderson, Mr. James MacDonald, Mr. Clair Towle, Procon Inc.

Location and Time to be announced later.

January 8, 1959:

"The Estimate from the Standpoint of Management". Speaker, Mr. John Kronseder, Assistant Director of Engineering, Velsicol Chemical Corporation.

Location and Time to be announced later.

The above program illustrates the ambitious activities that are planned. Guests are invited to attend any and all of the meetings.

Programs held last spring were devoted to discussion of common interests and problems. E. W. Sheehan and J. A. Foushi presented a paper "Foundation for Common Understanding" to enable the discussions to have a frame of reference.

DELAWARE VALLEY SECTION

Recognition of the Section was approved by the Board of Directors at the meeting in Cleveland. The Section defines its boundaries as including the following counties in the tri-state area:

Delaware: New Castle County

New Jersey: Mercer, Burlington, Camden, Atlantic, Gloucester, Salem, Cumberland and Cape May Counties

Pennsylvania: Philadelphia, Bucks, Montgomery, Chester and Deleware Counties.

Members residing in these areas are cordially invited to become members and participate in the activities of the section.

On September 29th, at the Philadelphia Engineers Club, Harold Nettles of Pottstown Metal Products addressed the group on the subject of "Cost Estimation and Fabrication of Pressure Vessels".

The following officers were elected at this meeting:

President: Herman A. Chapman, Atlantic Refining Co., Philadelphia, Pennsylvania.

Vice-President: E. A. O'Connell, Merck Sharpe & Dohme, Philadelphia, Pennsylvania.

Secretary: John J. Farrell, Catalytic Construction Co., Philadelphia, Pennsylvania.

Treasurer: H. E. Mills, General Chemicals, Camden, New Jersey.

Board of Directors: Fred Franks, American Viscose Corp., Philadelphia, Pennsylvania; A. G. Bates, Atlas Powder Co., Wilmington, Delaware; Hermann Marnet, Merck Sharpe & Dohme, West Point, Pennsylvania.

The next meeting is being planned for November. Contact the Secretary for further information.

MID-ATLANTIC SECTION

"Project Cost Control" by L. W. Blazey was presented at the First Annual Meeting of the Section. This paper is enclosed with the *Bulletin* and its distribution was made possible through the courtesy of Merck & Company and this Section.

The October 15 meeting featured Irwin Bromberg of the Foster Wheeler Corporation, who presented a "short-cut" estimating procedure on "Fractionation System Costs". An enthusiastic discussion followed his well received talk. (Plans are being made to distribute this paper to the membership.)

(Continued on Page Eighteen)

MID-ATLANTIC SECTION — (Continued)

December 3, 1958:

"Personal Investment Planning for Engineers". Speaker, Mr. Seymour Schwartz, President, S. Schwartz & Associates—Consulting Engineers. Brass Rail Restaurant, 521 Fifth Avenue, New York City — 6:00 P. M.

NORTHEAST OHIO SECTION

Meetings of the Section are scheduled for the first Thursday of the month of October, November, December, and February, March, April and May in the new Cleveland Engineering & Scientific Center. Dinner will be at 6:30 p. m. with the meeting starting at 8 o'clock.

On October 2, 1958, Mr. Albert E. Grover, Professional Cost Consultant presented a talk on "Fundamentals of Dependable Costs"

November 6 — "Estimates by Contractors", William J. Funk, Arthur G. McKee & Co.

Other Programs that are planned for the year include:

December 4 — "Economic Tower Design with Computers". Dr. Ching Tsoo, Service Bureau Corporation.

January 30, 1959 — *Small Electronic Computer Workshop* Workshop will feature computer programming and the demonstration of three desk size computers on a profitability problem and a design problem.

There will be a full day's program and a well-known authority will address the luncheon.

All AACE members are invited. For further information contact: Dean Forrest, General Tire & Rubber Co., Middle Road, Ashtabula, Ohio.

The Section is a new member of the Cleveland Technical Society Council.

Officers elected for the year starting July 1, 1958 are as follows:

President: William J. Hegerty, Colonial Iron Works, Cleveland, Ohio.

Vice-President: Robert E. Jones, Standard Oil of Ohio, Cleveland, Ohio.

Secretary: James C. Cowan, Columbia-Southern Chemical Corp., Barberton, Ohio.

Treasurer: Milton C. Wakefield, Harshaw Chemical Company, Cleveland, Ohio.

Directors: Keith Grierson, Diamond Alkali Company, Painesville, Ohio; Otto Rose, Ryan Industries, Cleveland, Ohio.

PITTSBURGH SECTION

Since the site of the 3rd Annual Meeting of the AACE is scheduled for Pittsburgh, the Section has been quite busy making arrangements. Dr. James H. Black has been appointed Convention Arrangements Chairman and under his leadership the committee is planning an interesting and enjoyable program for June 24, 25 and 26, 1959. It's not too early to circle those dates on your calendar and plan to attend.

On September 10, Mr. T. C. Rhodes, Turner Construction Company, spoke to the Section on building construction costs. His address was entitled "Dollars and Sense".

SAN FRANCISCO BAY SECTION

"Quantity Surveys — Its Role in Cost Engineering" was the subject presented by Albert LeRoy, President and Owner of LeRoy Construction Services at the July 23rd meeting of the Section. Although the use of Quantity Surveys has not gained much headway in the construction industry, its use is spreading. In England, the use of Quantity Surveys is an accepted practice for all phases of construction, not only in architectural and structural, but also in all mechanical trades such as heating, plumbing, ventilating and process piping. Mr. LeRoy is working for a wider acceptance of Quantity Surveys in this country. The talk was followed by a lively question and answer period.

On October 29, "Problems in Bidding Overseas Work", was discussed by Leroy Sowers, Cost Engineer of Foreign Industrial Work, Heavy Construction Division of H. J. Kaiser, Co.

The meeting was held at Tiny's Restaurant in Oakland and was preceded by refreshments and dinner.

Newly installed officers of the Section are:

President: William G. Clark, The Dow Chemical Company, Pittsburg, California.

Vice-President: Carl E. Dillon, Shell Development Company, Emeryville, California.

Secretary-Treasurer: Gus A. Anderson, Kaiser Engineers, Oakland, California.

Directors: Marion D. Cunningham, Tidewater Oil Company, Associated, California; William E. Hand, Shell Development Company, Emeryville, California.

ORGANIZATION OF NEW SECTIONS

In order to provide an opportunity for group activities at the local level, the AMERICAN ASSOCIATION OF COST ENGINEERS encourages the formation and establishment of regional sections.

The advantages of closer personal relationships, opportunities for discussion of mutual problems and the frequent dissemination of data vital to the profession are a few of the reasons for joining or forming a section.

If you reside in an area not covered by an existing Section and would like to benefit and assist in its organization contact: B. V. Nemeth, Chairman, Regional Activities, AACE, 840 Madison Avenue, Painesville, Ohio.

Members residing in the following areas can write to the people listed below. These men are "spark plugging" sections in their regions.

W. F. Gott, Union Carbide Chemicals Co., P. O. Box 836, South Charlestown, West Virginia.

James Bachman, 175 Hemlock Drive, Beaconsfield, Quebec, Canada.

John H. Herbert, 22 Fairway, Leigh-On-Sea, Essex, England.

H. J. DeLamater, Anderson-Nichols & Company, 150 Causeway Street, Boston 14, Massachusetts.

Members in the Los Angeles, Oak Ridge and Savannah areas are working on the organization of sections in their regions. If you would like to become a part of these organizations contact Mr. B. V. Nemeth.

Things Aren't What They Used To Be

(Continued from Page Fifteen)

me. "You've put on a little weight, Bob," I said "It's this modern food," he replied. "It seems to be more fattening."

I got to thinking about poor Bob while I was shaving before dinner this evening. Stopping for a moment I looked at my own reflection in the mirror. You know, they don't use the same kind of glass in mirrors any more.

[C. H. Chilton, having a strong conscience pointed out to the Editor that the speech was not original with him, but was adapted from a piece he read in a journal.]

Regional Section Directory

If you reside near one of the regional sections contact the secretary so that you can benefit from the worthwhile activities of your region. If a business trip coincides with a meeting of a section outside your region you are very welcome to participate in any and all activities.

CHICAGO — MIDWEST

E. John Mark, Room 2148, 35 East Wacker Drive, Chicago 1, Illinois

DELAWARE VALLEY

John J. Farrell, Catalytic Construction Company, 1528 Walnut Street, Philadelphia 2, Pennsylvania.

GULF COAST

Thomas C. Ponder, **Petroleum Refiner,** P. O. Box 2608, Houston 1, Texas.

MID-ATLANTIC

E. F. Brummerstedt, Foster Wheeler Corp., 666 Fifth Avenue, New York 19, New York.

NORTHEAST OHIO

James C. Cowan, Columbia-Southern Chemical Corp., P. O. Box 31, Barberton, Ohio.

PITTSBURGH

James J. Butler, Jr., Jones & Laughlin Steel Corp., Graham Research Laboratory, 900 Agnew Road, Pittsburgh 31, Pennsylvania.

SAN FRANCISCO BAY

Gus A. Anderson, Kaiser Engineers, 1924 Broadway, Oakland 12, California.

Personnel Service

With the dual objective of serving our members, especially in these difficult times, and increasing the value of the *AACE Bulletin,* the Board of Directors has approved the establishment of a Personnel Section in the *Bulletin.*

Members will be permitted insertions in the "Men Available" section without charge. There will be a limit of two no-charge insertions per year.

Insertions in the "Positions Available" section will be charged at $10.00 to help cover the cost of the extra clerical work involved, with somewhat larger charges for ads requiring an unusual amount of space.

For further information write to Executive Secretary, Ed Shanken.

MAN AVAILABLE

Cost Engineer — cost accountant. Engineering and accounting education, experience in industrial construction, hydro electric plants, pipeline construction. Versatile, adaptable, immediately available.

Frank Sanderson
257 North Purdue Avenue
Oak Ridge, Tennessee

What's Happening . . .

Harold J. DeLamater has been named Chief Estimator at Anderson-Nichols & Co. He was formerly associated with Chemical Construction Corp. Mr. DeLamater is "spark-plugging" the organization of a Boston Regional Section of the AACE.

Edward A. Arroyave is spreading his talents around South America. Formerly with International Petroleum (Columbia) Ltd., he is now associated with Compania Shell de Venezuela.

Power Corporation of Canada Limited recently formed an associate company called Power Corporation Designers & Consultants Limited, in Montreal. Donald D. Dick is Vice President and Manager of the new company that has expanded its consulting engineering services in the fields of mechanical, structural, electrical and civil engineering.

O. R. Roberts was the author of an article on "How to Estimate Piping Labor" which appeared in the **Refiner.**

Warren H. Buell, Manager of the Economics & Planning Dept. of the Union Oil Company of California, has recently moved into the new Union Oil Center.

Ohio Machine & Boiler Co. merged with three other companies to form Ryan Industries, Division of the W. F. Ryan Corp. Otto Rose is Vice President and Everett C. Gornell is Sales Engineer of this new company.

Louis Dallavia is author of the book **Estimating General Construction Costs.**

E. P. Shumaker has been promoted to Manager of the Planning Coordination Dept. of the California Texas Oil Co., Ltd.

Harry A. Quigley is now in the Economic Evaluation Dept. of the Atlas Powder Co.

Kenneth W. P. Cheng is associated with the Ferber Construction Co. He was formerly with H. K. Ferguson Co.

O. T. Zimmerman and Irvin Lavine are now preparing Supplement 3 to their well known **Handbook of Material Trade Names.**

John P. Marcy is now a design engineer in the estimating department of Aerojet-General Corp. He was formerly with Southwestern Engineering Co.

Wallace L. Miller is now with Humphreys and Glasgow (Canada) Ltd. He was formerly affiliated with Catalytic Construction of Canada.

Dr. Aaron Rose was appointed Director of Texas Engineering Experiment Station. He was formerly associated with the Research and Development Division of Olin Mathieson Chemical Corporation.

Vulcan Iron & Engineering Ltd. is now Bridge & Tank Western, Ltd., Winnipeg, Canada. John J. Lanz is Chief Estimator and James E. Gold is an Estimator with the newly named firm.

William G. Donaldson back from Turkey where he was with Chas. T. Main, Inc., is now in New York with Uhl, Hall and Rich.

Walter S. Craig is now associated with the M. W. Kellogg Co. as Senior Cost Engineer.

Donald Kallman was killed in an automobile accident in Rome. He had been associated with the Babcock & Wilcox Company in the Atomic Energy Division.

Still happy after three days of sessions the Cost Engineers pose for their picture at the 2nd Annual Meeting of the AAC'E at Case Institute of Technology in Cleveland, Ohio.

MARK YOUR CALENDAR **NOW**

PLAN TO ATTEND THE

THIRD ANNUAL MEETING

of the

AMERICAN ASSOCIATION OF COST ENGINEERS

JUNE , 1959

SUN.	MON.	TUES.	WED.	THURS.	FRI.	SAT.
21	22	23	24	25	26	27

TO BE HELD AT THE

CARNEGIE INSTITUTE OF TECHNOLOGY

PITTSBURGH, PENNSYLVANIA